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(54) DIGITAL TV RECEIVING APPARATUS FOR PORTABLE COMPUTER

Abstract

Machine Translation | Human translation

The present invention relates to the digital TV receiving circuit for the handheld computer, and conventionally it had the problem that a portability was lowered since it was not applied to the hand-held personal computer because the interface method was to the PCI mode and being nearly used for the desktop PC with a qualification. Therefore, the present invention has the effect that the output signal of a demodulator and the demodulator in which the tuner, outputting only the signal of the channel siding the signal received from the broadcast network and desires the filter in which a signal is input from a tuner and filtering this and filtering signal of the filter are input and demodulating this and outputting the digital signal is input and this is decoded and the image of a decoder and the decoder which the decoder output to an image, and the stream for the additional information and voice, and the decoding which decodes the additional information with decoding the voice stream and outputting the image / audio signal according to that and address / data according to that and the transmission path for outputting a command and data from a host to a decoding are provided, or it applies to a product such as the personal computer and hand-held personal computer by adding the PCMCIA function of interfacing in the digital TV receiving circuit by comprising including the interface unit for interfacing PLD, providing the transmission path for outputting the output signal of a decoding to a host a host and signal, and, a portability is improved.

Machine translation | Human Translation

PURPOSE: A digital TV receiving device for portable computer is provided to improve mobility in application to a personal computer or a portable computer by adding a PCMCIA(Personal Computer Memory Card International

Association) interface function to a digital TV receiving device.

CONSTITUTION: A VSB(Vestigial Side Band) tuner unit(1) tunes a signal received from a broadcasting network to output just a signal of wanted channel. An SAW(Surface Acoustic Wave) filter(2) receives the signal from the VSB tuner unit(1) to perform a SAW filtering. A demodulator(3) receives the filtering signal of the SAW filter(2) and demodulates it to output a digital signal. A VSB decoder(4) decodes the output signal of the demodulator(3) and outputs a stream of image, sound and supplementary information. An MPEG(Moving Picture Expert Group) 2 decoding unit(5) decodes the image and sound stream of the VSB decoder(4) to output a corresponding video/audio signal, and decodes the supplementary information to output corresponding address/data. A PLD(Programmable Logic Device)(100) supplies with a transmission path to output command and data from a host to the MPEG 2 decoding unit(5) or supplies with a transmission path to output the output signal of the MPEG 2 decoding unit(5) to the host. A PCMCIA connector(200) interfaces a signal with the host.

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Representative Drawing(s)

Fig. 2

Descritption

Brief explanation of the drawing

2 Fig. 1 is a schematic diagram showing a configuration of the digital TV having the general PCI interface.

3 Fig. 2 is the digital TV receiving circuit for the present invention handheld computer.

4 Fig. 3 is a block diagram showing a configuration of PLD as to Fig. 2.

5 Fig. 4 is a Bouin drawing data input/output transmission path of the digital reception modulo in a host as to Fig. 2.

6 Fig. 5 is a Bouin drawing the transmission path when the digital receive module outputs an image and voice to a channel as to Fig. 2, it is selected.

7 *****The description of reference numerals of the main elements in drawings*****

8 1: VSB tuner 2: saw filter.

9 3: demodulator 4: VSB decoder.

10 5: MPEG2 decoding 100: PLD.

11 200: PCMCIA connector.

- Details of the Invention
- Purpose of the Invention

The Technical Field to which the Invention Belongs and the Prior Art in that Filed

12 The present invention relates to the digital TV receiving circuit for the handheld computer, particularly, to the digital TV receiving circuit for the personal computer or the handheld computer receiving the digital TV by the hand-held personal computer through the PCMCIA interface.

13 In FCC of 1997 year U.S, while the wide range market of 21 intensity digital image era was opened by adopting the ATSC (Advanced Television System Committee) standard,, medium units which are various according to the entry of such digital broadcasting age are shown up. And it is the media in which the DVD (Digital Video Disc) etc. are till now widely known to the general user. The market to some extent has the DVCR (Digital Video Cassette Record) in the stage of realization.

14 And as to the digital TV, while processing many data of an amount than the existing analog television could process, the channel receiving a broadcast was very much added due to the efficient use of a bandwidth. While providing the picture quality of the high definition and tone quality of the CD level, an application and the peripheral for being many are added and it can provide the home shopping, the electronic newspaper, and various additional services like the stock information.

15 In the outside of TV for the existing PAL / NTSC the digital broadcast receiver like the set top box for DBS, this kind of digital TV can connect through the line. It builds within the TV itself and it can comprise.

16 In the meantime, recent users felt the necessity to satisfy this desire of the users by using the multimedia technology in a system such as the digital TV and internet TV due to the developmemt of the multimedia technology because of being well acquainted in the high definition, and the graphic screen of the high definition.

17 Accordingly, by using the digital broadcast receiver, the multimedia contents described through a channel such as the broadcast network and modem to the HTML (Hyper Text Makeup Language) or the other script language was downloaded.

18 At this time, the service provider providing the multimedia contents can divide into the broadcast dealer using the existing broadcast network and the interactive service dealer using the return channel like a modem.

19 As to the multimedia contents produced by this service provider, by using the private section of the MPEG -2 stream or the DSM-CC protocol, it usually receives the multimedia contents service an offer from the interactive service server.

20 And it has the digital TV add-on card as shown in
Fig. 1, having the PCI interface to the application for receiving the digital TV broadcasting as described above. The application is nearly used for the desktop PC with a qualification because the interface method as shown in the figure to the PCI mode.

21 That is, the systems division performs the initialization about the digital TV receiving circuit through the PCI bus. The digital TV receiving circuit converts the signal received to an antenna into an audio and video data after the decoding process and it is respectively put through the audio logic and video logic and thereafter video data and audio data are reproduced through a screen and speaker.

Technical challenges of the Invention

22 That is, as described above, conventionally, there is a problem that a portability is lowered since it is not applied to the hand-held personal computer because the interface method is to the PCI mode and being nearly used for the desktop PC with a qualification.

23 Therefore, it originates in consideration of the problem as described above. And an object of the present invention is to provide the digital TV receiving circuit for the personal computer or the handheld computer receiving the digital TV by the hand-held personal computer through the PCMCIA interface.

- **Structure & Operation of the Invention**

24 The present invention for achieving a purpose as described above is characterized that the output signal of a demodulator and the demodulator in which the tuner, outputting only the signal of the channel siding the signal received from the broadcast network and desires the filter in which a signal is input from a tuner and filtering this and filtering signal of the filter are input and demodulating this and outputting the digital signal is input and this is decoded and the image of a decoder and the decoder which the decoder output to an image, and the stream for the additional information and voice, and the decoding which decodes the additional information with decoding the voice stream and outputting the image / audio signal according to that and address / data according to that and the transmission path for outputting a command and data from a host to a decoding are provided, or it comprises including the interface unit for interfacing PLD, providing the transmission path for outputting the output signal of a decoding to a host a host and signal.

25 Referring to the figure below, and the action about the digital TV receiving circuit for the handheld computer and effect are circumstantially illustrated.

26 Fig. 3 is a block diagram showing a configuration of the embodiment about the digital TV receiving circuit for the present invention handheld computer. As shown in the above, the transmission path for outputting a command and data from the image of the VSB tuner (1): outputting only the signal of the channel siding the signal received from the broadcast network and desires and the saw filter (2): in which a signal is input from the VSB tuner (1) and filtering this with light rain and the demodulator (3): in which the filtering signal of the saw filter (1) is input and which demodulates this and outputting the digital signal and the VSB decoder (4): in which the output signal of the demodulator (3) is input and which decodes this and outputted to an image, and the stream for the additional information and voice and VSB decoder (4), and the MPEG2 decoding (5): which decodes the additional information with decoding the voice stream and outputting the image / audio signal according to that and address / data according to that and host to the MPEG2 decoding (5) is provided, or it comprises with the PCMCIA connector (200) for interfacing the PLD (100):, providing the transmission path for outputting the output signal of the MPEG2 decoding (5) to a host a host and signal.

27 Fig. 3 is a block diagram showing a configuration of PLD. As shown in the above, the driving control signal of the address decoder and the controller (101): in which the system address and system data (Control) are input from a host and which decodes this and outputting the driving control signal according to that and address decoder and controller (101) are input and it comprises with the first, clannishly,cliquishly,exclusively activated according to that the second driver part (102), and (103). And an operation of the present invention comprised in this way is illustrated.

28 Firstly, if the desired channel control signal is input from a host, the VSB tuner (1) outputs only the signal of the channel siding the signal received from the broadcast network and desires. A signal is input from the VSB tuner (1) and it filters this with light rain and the saw filter (2) outputs.

29 And then, as to the demodulator (3), the filtering signal of the saw filter (2) is input and it demodulates this and it outputs the digital signal. The output signal of the demodulator (3) is input and it decodes this and the VSB decoder (4) outputs to an image, and the stream for the additional information and voice.

30 As to a next, and the MPEG2 decoding (5), with decoding the image of the VSB decoder (4), and the voice stream and outputting the image / audio signal (VD(0:7),Audio) according to that, it decodes the additional information and it outputs the address / data (ADDR/DATA) according to that.

31 At this time, the PLD (100) provides the transmission path like
Fig. 4 in order to output the output signal (VD(0:7) ,Audio) of the MPEG2 decoding (5), and (ADDR/DATA) to an initial to a host. The PLD (100) here clannishly,cliquishly,exclusively runs the first, the second driver part (102), and (103) according to the system address and the system data (Control) having one address from the host side and designates the PLD (100).

32 That is, the system address and system data (the Control: lead / light) are input to the address decoder and controller (101) from a host and this is decoded and the driving control signal according to that is authorized in the second driver part (103). By this, the second driver part (102) is activated and the output signal of the MPEG2 decoding (5) is outputted to the host side.

33 On the contrary, as shown in
Fig. 4, the system address and system data (Control) are input to the address decoder and controller (101) from a host and this is decoded from a host to the MPEG2 decoding (5) in data transmission and the driving control signal according to that is authorized in the first driving part (102). By this, the first driving part (102) is activated and the output signal of the host side is transmitted with the MPEG2 decoding (5).

34 More concretely, if the present invention are illustrated, the PLD (100) has one address when owing to a host. The first, the second driver part (102), and (103) are clannishly,cliquishly,exclusively activated according to the system address and the system data (Control) designating the PLD (100).

35 When the first driving part (102) was activated with the address decoder and controller (101), the transmission path accessing the digital receive module in the host side is formed. At this time, initialization (the register value setting, and the channel selection) about the digital receive module are made.

36 On the contrary, when the second driver part (103) was activated with the address decoder and controller (101), the transmission path in which the image / audio data (VD(0:7),Audio) restored in the digital receive module is delivered is made. By this, as shown in
Fig. 5, it is the image / audio data (VD(0:7) ,Audio) delivered after the PCMCIA connector (200) to the host side.

37 In a next, and each image / audio data (VD(0:7),Audio) within the host system is the image processing logic and audio processing logic, it becomes respectively with fixed process and it is reproduced.

38 Here, with the chip select signal about the MPEG2 decoding (5) being generated according to the read write (Control) and address (System address) of the host system and controlling data direction of the first driving part (102), if described in more detail, the operation of the controller (101) and address decoder the lead / light (Control) about the register can be practiced. And it switches off. It comes the second driver part (103) by using moreover, the read write (Control) and address (System address) of the host system.

39 At this time, data is transmitted from the digital receive module to the host side if it is the read command in the digital receive module access. The address is transmitted from the host side to the digital reception module. And data and address are altogether transmitted to the digital receive module from the host side if it is the write command in the digital receive module access.

40 Here, the PCMCIA connector (200) is the connection element for interfacing a host and digital receive module.

▸ Effects of the Invention

41 As illustrated in detail in the above, the present invention has the effect that it applies to a product such as the personal computer and hand-held personal computer by adding the PCMCIA function of interfacing in the digital TV receiving circuit and, a portability is improved.

Scope of Claims

Claim[1] :

42 The digital TV receiving circuit for the handheld computer wherein the output signal of a demodulator and the demodulator in which the tuner, outputting only the signal of the channel siding the signal received from the broadcast network and desires

the filter in which a signal is input from a tuner and filtering this and filtering signal of the filter are input and demodulating this and outputting the digital signal is input and this is decoded and the image of a decoder and the decoder which the decoder output to an image, and the stream for the additional information and voice, and the decoding which decodes the additional information with decoding the voice stream and outputting the image / audio signal according to that and address / data according to that and the transmission path for outputting a command and data from a host to a decoding are provided; and it comprises including the interface unit for interfacing PLD, providing the transmission path for outputting the output signal of a decoding to a host a host and signal.

Claim[2] :

43 The digital TV receiving circuit for the handheld computer of claim 1, wherein in PLD, the driving control signal of the address decoder and the controller in which the system address and system data are input from a host and which decodes this and outputting the driving control signal according to that and address decoder and controller are input and it gets the first clannishly,cliquishly,exclusively activated according to that, and the second driver part comprise.

Claim[3] :

44 The digital TV receiving circuit for the handheld computer of claim 2, wherein the first driving part forms the transmission path which is activated with the address decoder and controller and can access the digital receive module in the host side.

Claim[4] :

45 The digital TV receiving circuit for the handheld computer of claim 3, wherein the address it is the read command in the digital receive module access is transmitted from the host side to the digital receive module.

Claim[5] :

46 The digital TV receiving circuit for the handheld computer of claim 3, wherein data and address are altogether transmitted to the digital receive module from the host side if it is the write command in the digital receive module access.

Claim[6] :

47 The digital TV receiving circuit for the handheld computer of claim 1, wherein the second driver part is activated with the address decoder and controller and it forms video data restored in the digital receive module, and the transmission path in which audio data are transferred to the host side.